



# Echocardiography in Systemic Diseases: Questions

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## DISCLOSURE

### Relevant Financial Relationship(s)

None

### Off Label Usage

None

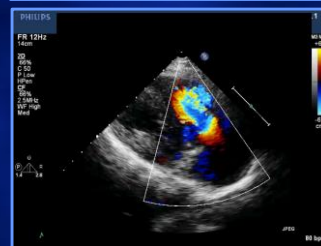
# Question 1



A 68-year-old man presents with fatigue and abdominal bloating. On cardiac exam, the jugular venous pressure revealed “CV” waves to angle of the jaw. An RV lift is present. There is a grade 2/6 pansystolic murmur at the lower sternal border that gets louder with inspiration. There is a soft systolic ejection murmur and diastolic murmur at the second left interspace. In addition, there is an enlarged and pulsatile liver. Images obtained from his TTE are shown.

Which of the following is the most likely diagnosis?

- A. Rheumatic heart disease
- B. Carcinoid heart disease
- C. Ebstein’s anomaly
- D. Endocarditis



## Question 2

**What is the most likely etiology of the mixed valve disease in this 56 year old patient with a hx of Hodgkins Lymphoma?**



Courtesy of Dr. WK Freeman

**What is the most likely etiology of the mixed valve disease in this 56 year old patient with a hx of Hodgkins Lymphoma?**

- A. Chemotherapy induced valve disease
- B. Radiation induce valve disease
- C. Ergotamine induced valve disease
- D. Degenerative calcific valve disease



## **Radiation Induced Cardiac Disease**

- Pancarditis: pericardial, myocardial, endocardial/valvular (fibroelastosis)
- Acute pericarditis during therapy
- Delayed pericarditis: constriction, pericardial effusion
- Cardiomyopathy: diastolic/systolic dysfunction
- CAD: intimal proliferation, endothelial dysfunction
- Conduction system defects

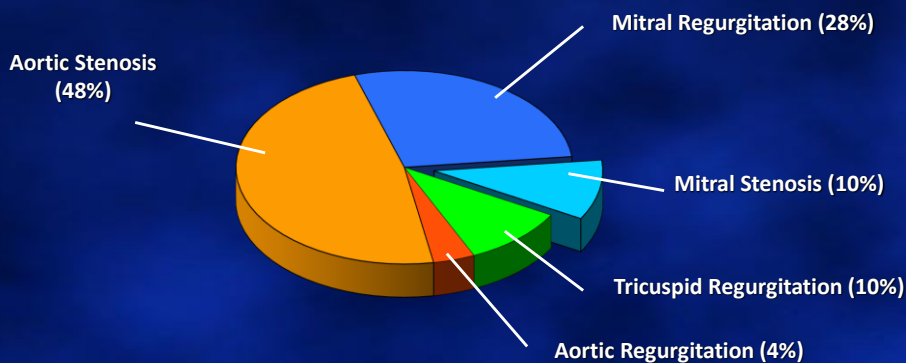


## Radiation Therapy for Hodgkin's Lymphoma Cardiovascular Effects in 404 Patients (Treated 1962-1998)

	Incidence	Median Time After Therapy
Coronary Artery Disease	10.4%	9 Yrs
Carotid ± Subclavian Disease	7.4%	17 Yrs
Significant Valvular Disease	6.2%	22 Yrs

Hull MC, et al. JAMA 2003; 290:2831

## Radiation Therapy for Hodgkin's Lymphoma Clinically Significant Valvular Disease



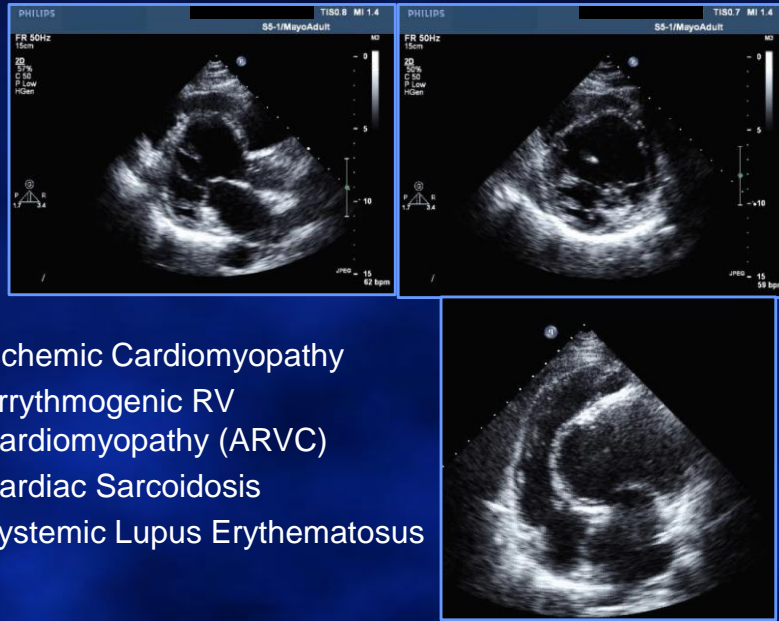
Hull MC, et al. JAMA 2003; 290:2831

## Question 3

What is the most likely diagnosis in this 58 yo man with pulmonary infiltrates and syncope?



What is the most likely diagnosis in this 58 yo man with pulmonary infiltrates and syncope?



- A. Ischemic Cardiomyopathy
- B. Arrhythmogenic RV Cardiomyopathy (ARVC)
- C. Cardiac Sarcoidosis
- D. Systemic Lupus Erythematosus

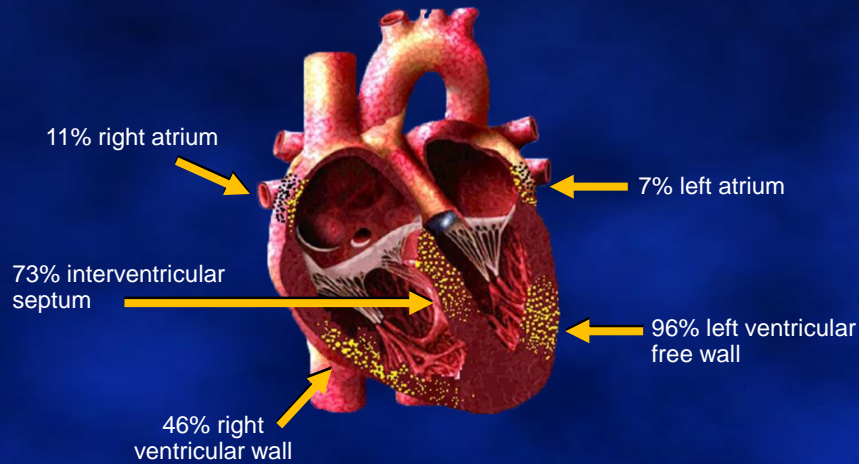
## Cardiac Sarcoidosis

- Noncaseating granuloma
- Regional wall motion abnormalities in unusual distribution
- Heart block
- Sudden death



Courtesy William Edwards, MD

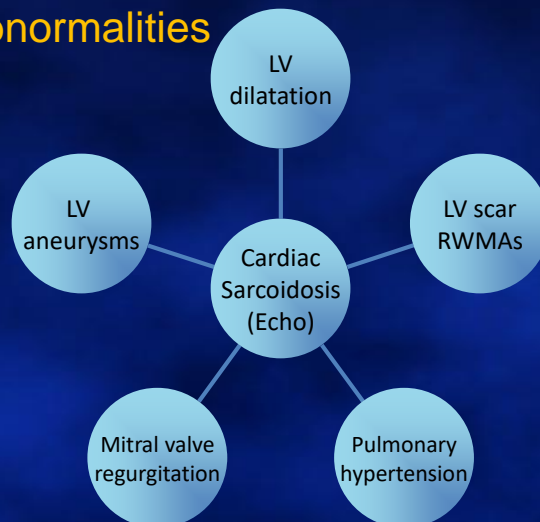
## Sarcoidosis – Granulomas



Adapted from Bargout R: Int J Cardio, 2004

## Sarcoidosis – Echo features

Echo abnormalities  
are rare

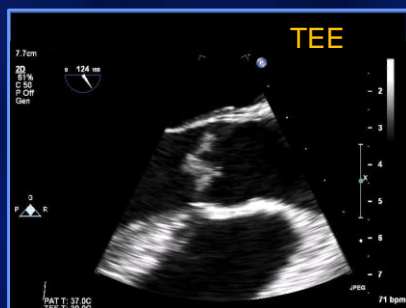


Adapted from Sekhri V et al. Arch Med Sci 2011



## Question 4

**33 Year Old Female antiphospholipid antibody positive, negative blood cultures, and multiple strokes**



- What is the most likely diagnosis?
- A. Staph aureus endocarditis
  - B. Libman-Sacks endocarditis
  - C. Thickened bicuspid aortic valve
  - D. Eosinophilic valvulitis



## Systemic Lupus Erythematosus - Cardiac Involvement

- Pericarditis (fluid ANA+)
- Lupus anticoagulant
- Anticardiolipin antibodies
- Myocarditis
- Coronary arteritis
- Libman-Sacks (Marantic) vegetations

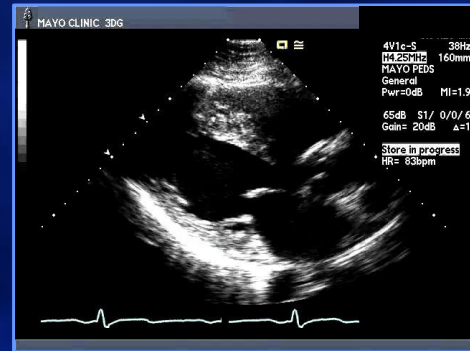


Courtesy of W Edwards MD

### Question 5

## What is the most likely diagnosis in this 35 year old female with a history of migraine headaches and no history of rheumatic fever?

- A. Ergot associated valvular disease
- B. Aortic and mitral valve endocarditis
- C. Parachute mitral with coexistent aortic regurgitation
- D. Left sided carcinoid valve disease



## Drug-Induced Valvular Disease Echocardiographic Findings

- Thickening and retraction of valve leaflets or cusps
  - No commissural fusion
  - Reduced mobility, restricted closure coaptation
- Thickened, fused, shortened MV/TV chordal support apparatus
- Variable regurgitation, rarely significant stenosis

Mimics Rheumatic  
Valve Disease

## Drug Induced Valve Disease

- 5-HT<sub>2B</sub> Receptor
  - Pergolide
  - Cabergoline
  - MDMA (Ecstasy)
  - Fenfluramine
  - Methylsergide/Methylergonovine

Bhattacharyya S, et al. Lancet 2009; 374:577

### MDMA (3,4-Methylenedioxymethamphetamine) Echo Findings with “Ecstasy” Abuse

	<u>MDMA Users (n=33)</u>	<u>Controls (n=29)</u>
Duration of use	6.1 ± 3.4 yrs	0
Age (yrs)	24.3 ± 3.1	25.6 ± 3.1
MR ≥ Grade 2/4	4 (14%)	0
Restricted MV motion	7 (24%)	0
TR ≥ Grade 2/4	13 (45%)	0
Restricted TV motion	7 (24%)	0
AR ≥ Grade 1/4	4 (14%)	0

- Prevalence of MDMA abuse: 0.4 – 6% worldwide

Droogmans S, et al. Am J Cardiol 2007; 100: 1442





# Thank You!

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